Spring 4-28-2016

Preoperative Assessment Clinic Reduces Total Joint Arthroplasty Case Cancellations

Angelica Adriano
aadriano@sandiego.edu

UNIVERSITY OF SAN DIEGO

Hahn School of Nursing and Health Science

DOCTOR OF NURSING PRACTICE PORTFOLIO

by

Angelica Adriano, MSN, FNP-BC

A portfolio presented to the

FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
UNIVERSITY OF SAN DIEGO

In partial fulfillment of the
requirements for the degree

DOCTOR OF NURSING PRACTICE
May 2016

Joseph Burkard, DNSc, CRNA, Faculty Chairperson
Scot Nolan, DNP, RN, CNS, PHN, CCRN, CNRN, Seminar Faculty
William McMaster, MD, F.A.C.S, F.A.A.O.S., Clinical Mentor

Pages: 17
Words: 2862
Tables: 3
Figures: 5
Appendix: 5
Photos: 0
References: 6
Contact: Angelica Adriano
Email: aadriano@sandiego.edu
Guarantor: Angelica Adriano

PREOPERATIVE ASSESSMENT CLINIC REDUCES TOTAL JOINT ARTHROPLASTY CASE CANCELLATIONS

Angelica Adriano, MSN, FNP-BC, DNP Student
Joseph F. Burkard, DNSc, CRNA, CDR, USN, Retired
Mary Jo Clark, PhD, RN
William McMaster, MD, F.A.C.S, F.A.A.O.S

University of San Diego

Conflict of Interest

The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, University of San Diego, or the United States Government. This work was prepared while the author was a student at the University of San Diego and as part of the author's official duty. Title 17 U.S.G. 105 provides 'Copy-right protection under this title is not available for any work of the United States Government.' Title 17 U.S.C. 101 defines a United States Government work as a work prepared by a military service member or employee of the United States Government as part of that person's official duties.

KEYWORDS
Preoperative Assessment Clinic, preoperative evaluation, orthopedics, nurse practitioner, total joint arthroplasty cancellations

Abstract

The purpose of this evidence-based project was to reduce the rate of elective total joint arthroplasty case cancellations by implementing a nurse practitioner-led Preoperative Assessment Clinic (POAC), in the orthopedic department of a major southern California Veterans Affairs (VA) hospital. Retrospective data collected in a 12-month time period showed a surgical cancellation rate of 22%. Reasons for delays or cancellations included: medical instability, abnormal labs and/or studies, patients requiring referral to specialists, dental clearance, patient-initiated cancellations, and active infections. The POAC reduced the rate of case cancellations at 1 year to 17% and at 2 years to 9%. Lost revenue for 12 case cancellations 2 years post-implementation was $62,940, whereas lost from 31 case cancellations prior to implementation was $162,595. A χ^2 test was performed to determine the relationship between the POAC and case cancellation rates. The relationship between these variables was statistically significant ($\chi^2 = 8.541$, $p = .003$).

The results demonstrate that a nurse practitioner-led POAC reduces surgical case cancellation rates, improving patient outcome, reducing wasted resources, and increasing patient satisfaction.

Background

Research suggests that delays in surgery can cause anxiety and frustration for the patient, resulting in poor patient satisfaction. Additionally, they can have a negative impact on hospital resources and revenue when operating rooms are not being utilized. Cancellation of elective surgical cases results in inefficiency and increased cost due to wasted resources.

A retrospective study, by Argo et al. (2009) evaluated elective surgical case cancellation rates, reasons for these cancellations, and identified areas for improvement within the Veterans Health Administration (VA) system. Case cancellation (CC) data in 2006 were collected from 123 VA facilities. The rate of cancellation during 2006 for the 9 service specialties evaluated was 12.4%. The CC rate for the orthopedic specialty was 11%. Other VA studies showed higher cancellation rates of 13% and 19.7%, and results from the United Kingdom were 14%. The VA rates were double that of the reported private sector rate of 4.6% to 6.3% (Argo et al., 2009).

Rymaruk (2011) performed a retrospective observational study of patient cancellations on the day of surgery in the general surgical department at a hospital in England from 2005 through 2010. A total of 978 general surgical patients undergoing upper gastrointestinal surgery, hepatobiliary surgery, endocrine surgery, and breast surgery were studied. For all the patients cancelled, the cause of cancellation was categorized and a further entry was made within each subcategory of the reason for cancellation.

The study estimated that nearly 80% of cancellations were avoidable or potentially avoidable with the main areas to address being cancellations due to patient

medical stability, lack of operating room time, and operations no longer being required. When combined, these causes accounted for over 70% of cancellations. The most common reasons for cancellations included: the presence of infection on the day of surgery, poor control of co-morbidities, incomplete investigations, and the need for input from other specialties. Less common causes included: the patient not being adequately prepared for surgery, such as not following nothing by mouth (NPO) instructions, medications not being stopped pre-operatively, and presence of an electrolyte imbalance (Rymaruk, 2011). The study highlighted the importance of recognizing and monitoring cancellations, the need for high quality preoperative assessment involving both doctors and nurses, and the introduction of new measures to overcome cancellations on the day of surgery due to a change in a patient's medical status (Rymaruk, 2011).

Knox, Myers, Wilson, and Hurley (2009) performed a retrospective analysis of 1063 elective surgical cases over a period of two years: one year prior to, and one year subsequent to, the establishment of a pre-operative assessment clinic (POAC). The aim of the study was to assess the impact of a POAC on case cancellations, and in particular, its impact on avoidable cancellations.

There was a 12.7% increase in the number of elective adult procedures performed following establishment of the PAOC (815 vs. 723), although this was not significant ($p>0.05$). Following the pre-assessment program, the case cancellation rate dropped significantly from 60% at baseline to 14% during the year after implementation ($p<0.01$). A reduction in case cancellations for hospital reasons, mainly due to lack of available hospital beds, was one significant contributor. The study also found that there was a significant reduction in medical reasons for cancellation, including inappropriate

medications, abnormal pre-operative investigations, untreated medical conditions, and patients deemed medically unfit for surgery by anesthesia. The majority of these medical reasons were avoidable with proper pre-operative assessment.

Cancellations of elective surgical cases are a persistent problem encountered in the orthopedic department at a southern California Veterans Affairs (VA) hospital. Baseline data collected on elective total joint replacement patients in the orthopedic outpatient clinic at this facility showed a surgical cancellation rate of 22%. Data also revealed a delay of a mean of 90 days, from the initial day of surgical recommendation to the day of actual surgery. Reasons for delays or cancellations included: medical instability (i.e. uncontrolled blood pressure, body mass index (BMI) > 35, Hemoglobin (Hgb) A1C > 8), abnormal labs and/or studies, patients requiring referral to specialists, lack of dental clearance, patient-initiated cancellations, and active infections (e.g., wounds, urinary tract infection, upper respiratory tract infection, sinus infection, tooth infection, fever).

Intended Improvement

Traditionally at this VA facility, patients that were recommended for total joint arthroplasty surgery were directed from the orthopedic clinic to the anesthetist to obtain clearance. A number of patients presented to anesthesia as inappropriate candidates for surgery. Additionally, history and physicals (H & Ps) were performed by the orthopedic residents on the day of surgery. Medical complications were discovered such as active infection, uncontrolled hypertension, and noncompliance with preoperative orders. This led to cancellations or delays of total joint arthroplasty cases. The majority of the reasons for delays or cancellations were due to medical instability. Some of the reasons for

cancellations on the day of surgery could have been avoided had the patient been evaluated prior to surgery in the POAC then one week prior to surgery for assessment of medical stability and skin inspection. By implementing the POAC, the nurse practitioner (NP) would perform the H&Ps, review labs, chest radiographs (CXR) and electrocardiograms (EKGs), to determine if the patient was medically optimized, prior to clearance by anesthesia.

It was believed that developing a preoperative screening protocol in the orthopedic clinic prior to referring the patients to anesthesia would reduce the cancellation rate. By tradition, the resident surgeons were completing the H & P on the actual day of surgery. With the POAC, the NP would perform the H & P prior to anesthesia clearance. Guidelines for screening were be obtained from an evidenced-based practice literature review, 2014 Perioperative Protocol Guideline by the National Guideline Clearinghouse (Card et al., 2014), the American Society of Anesthesiologists risk classification (Apfelbaum, Connis, & Nickinovich, 2012), and a consensus of recommendations by the anesthesia providers at the VA.

Setting

The POAC was developed in the orthopedic department of a major southern California VA hospital. The orthopedic department performs approximately 40 total joint arthroplasty cases per month on the veteran population. The multidisciplinary team that developed the program included the Chief of Anesthesia, Chief of Orthopedics, orthopedic NP, orthopedic residents, Certified Registered Nurse Anesthetist, surgical case manager, Licensed Vocational Nurse, Systems Redesign team, and the orthopedic ancillary staff.

Study Question

To assess whether implementation of a nurse practitioner-led Preoperative Assessment Clinic (POAC), in the orthopedic department at a major southern California Veterans Affairs (VA) hospital, would reduce elective total joint replacement surgical cancellation rates.

Nursing Model

The framework utilized to implement the POAC was the Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP). The model provides three major steps: (1) identification of the practice question, using a team approach; (2) collection of the evidence, which involves searching, critiquing, summarizing, determining strength of evidence, and making recommendations; and (3) translation of the evidence for use in practice, which includes determining feasibility of adopting the change and creating an action plan for implementation. The model includes a question development tool, an evidence rating scale, and appraisal criteria for research and non-research evidence. The JHNEBP Model is comprehensive and effective as it addresses all the important components of the EBP process (Schaffer, Sandau & Lee, 2012).

Ethical Issues

To protect the rights and welfare of human subjects, approval through the Institutional Review Board (IRB) at the VA facility was obtained. Online training was completed via the Talent Management System (TMS) which included the following topics: VA Privacy Policy & Information Security Awareness and Rules of Behavior Training; Privacy Policy & Health Information Portability and Accountability Act (HIPAA); and Collaborative Institutional Training Initiative (CTTI) – VA Human

Subject Protection & Good Clinical Practices. Furthermore, IRB approval from the University of San Diego Hahn School of Nursing and Health Science was acquired.

Intervention Implementation

The intervention included a preoperative evaluation of total arthroplasty surgical candidates in the POAC by the orthopedic NP. The orthopedic NP is experienced in the preoperative process in both the inpatient and outpatient settings. Evidence-based practice standards and protocols were utilized. Laboratory results were reviewed by the NP, EKGs were interpreted by the cardiologist, and chest radiographs were interpreted by the radiologist. Abnormal findings were discussed with the patient and proper referrals were made to primary care, specialists, or the dental clinic, as appropriate, before referral to the Pre-anesthesia Clinic for final preoperative clearance as depicted in Figure 1.

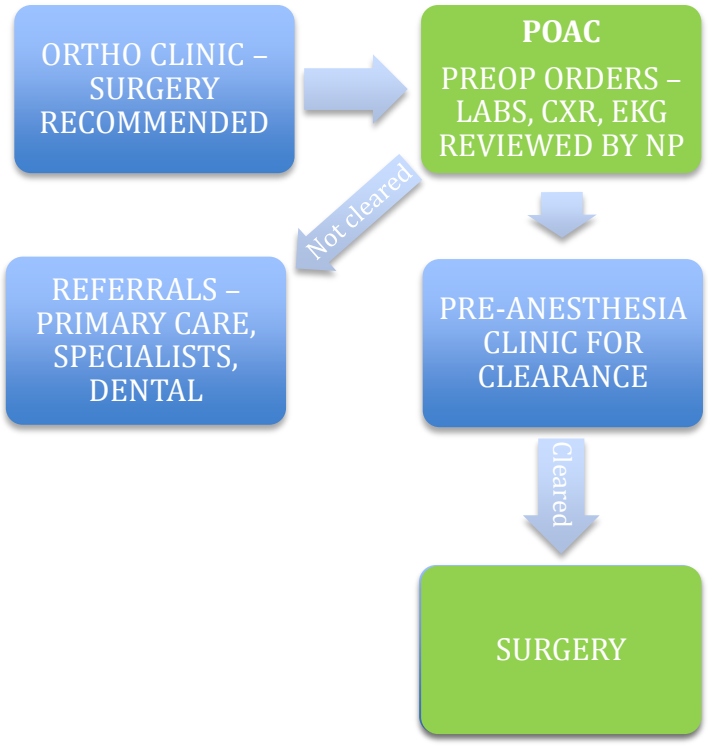


Figure 1. POAC Flowchart.

Evaluation Plan

The POAC was evaluated through electronic chart reviews via the Computerized Patient Record System (CPRS). To evaluate the effectiveness of the POAC, pre- and post-implementation (at 1 year and 2 years post-implementation) groups were created from this VA facility. Pre-POAC data included the following: (1) total number of patients who required total joint arthroplasty; and (2) total number of patients with surgical cancellations. Post-POAC data included the following: (1) total number of patients who required total joint arthroplasty; (2) total number of patients with case cancellations and reason for cancellations; (3) total number of patients evaluated within the POAC preoperatively; and (4) total number of patients with case cancellations evaluated within the POAC preoperatively and reason for cancellations.

Data from the pre-POAC group were obtained from July 2012 to June 2013, data from 1-year post-POAC were obtained from July 2013 to June 2014, and data from 2-years post-POAC were obtained from July 2014 to June 2015. Surgical case cancellation rates were evaluated using a 2 x 2 contingency table χ^2 test. Data analysis was performed using statistical software.

The POAC was implemented within the orthopedic department with office space, medical equipment and support staff currently in place. Income and expenses for implementing a POAC were estimated at $10,860 (Table 1). The income and expenses of performing a single total joint arthroplasty at this facility were estimated at $5,245 (Table 2).

Item	Description	Annual
Data Collection	Systems Redesign Coordinator will collect data. Hours spent for data collection 1 hr/week. Salary is $40/hr (24 weeks). LVN will collect patient surveys. Will not be added cost as she can perform this during normal clinic hours as part of the patient's post-operative visit.	$960
Data Entry	Systems Redesign Coordinator will enter data. Hours spent for data collection 1 hr/week. Salary is $40/hr x 6 months (24 weeks).	960
Data Analysis	Systems Redesign Coordinator will analyze data. Hours spent for data collection 1 hr/week. Salary is $40/hr (24 weeks).	960
NP H&P clinic	NP will see 10 patients/week for 30 minutes. Salary $80/hour = $400/wk x 6 months.	9,600
Materials for staff training	$50/month x 6 months = $300	300
Total		**$10,860**

Table 1. Cost to implement a POAC.

Item	Description	Per Case
Surgeon Salaries	Attending: $150/hr x 3 hrs = $450 Chief Resident: $60/hr x 3 hrs = $180 Junior Resident: $30/hr x 3 hrs = $90	$720
OR Nurse Salary	$50/hour x 3 hrs = $150	$150
CRNA Salary	$100/hr x 3 hrs = $300	$300
Scrub Technician Salary	$25/hr x 3 hrs = $75	$75
Opportunity cost for OR use time*	$4000 (range $4000-$15000)	$4000
Equipment Cost**	0	0
Total		**$5245**

Table 2. Cost to perform a total joint arthroplasty.

Discussion of Findings

A 2-year analysis was conducted to evaluate total joint arthroplasty case cancellations pre- and post- POAC from 2013 to 2015. It was hypothesized that the rate of total joint arthroplasty cancellations due to preexisting medical conditions would be reduced because of the ability to optimize patients in the POAC before their surgery.

Data was collected retrospectively during a 12-month time period to identify total joint arthroplasty cancellation rates and reasons for cancellation. The pre-POAC cancellation rate was 22%. At 1-year post-POAC implementation, the total joint arthroplasty cancellation rate declined to 17 % (n = 125), and at 2 years post-POAC the rate was 9% (n = 133) (Figure 2).

The factors identified as common, potentially preventable reasons for cancellation included: medical instability (i.e. uncontrolled blood pressure); body mass index (BMI) > 35 kg/m^2; hemoglobin A1c > 8%; abnormal labs and/or studies; necessity for referral to specialists; dental clearance; patient-initiated cancellations; and active infections (e.g., wounds, urinary tract infection, upper respiratory tract infection, sinus infection, tooth infection, fever) (Figure 3).

Medical reasons requiring additional testing or referrals accounted for 19.35% of cancellations pre-POAC. Active skin infections accounted for the highest percentage of these cancellations, at 29.03%. Cancellations at 2-years post-POAC because of medical reasons requiring additional testing or referrals decreased to 7.69%. The rate of active skin infections remained high at 53.85%. Skin infections included cuts, rashes, or ulcers that were identified on the day of surgery resulting in same-day cancellations. This was addressed by educating the patient on notifying the orthopedic clinic if active infections occurred (e.g., wounds, urinary tract infection, upper respiratory tract infection, sinus infection, tooth infection, fever). Patients were also asked to return to the clinic 2 weeks prior to surgery for skin inspection and overall assessment for stability, as the patient was required to remain free of infection for at least 2 weeks prior to the procedure.

Lost revenue for 12 case cancellations 2 years post-implementation was $62,940, whereas lost revenue from 31 case cancellations prior to implementation was $162, 595, a difference of $99,155.

A 2 x 2 contingency table χ^2 test was performed to determine the relationship between the POAC and case cancellation rates. The relationship between these variables was statistically significant, $\chi^2 = 8.541$, $p = .003$ (Table 3).

Surveys were created by the Chief of Orthopedics to assess patient satisfaction with the total joint arthroplasty perioperative process (Figure 4). Anonymous surveys were obtained for 3 months pre-POAC and for 6 months post-POAC. The post-POAC survey was revised to include 6 additional questions related to the perioperative process. The results revealed improvement in scores from baseline for most of the original items and high scores for the added items (Figure 5). Furthermore, 99% of the patients disclosed that they would recommend the facility to their family and friends.

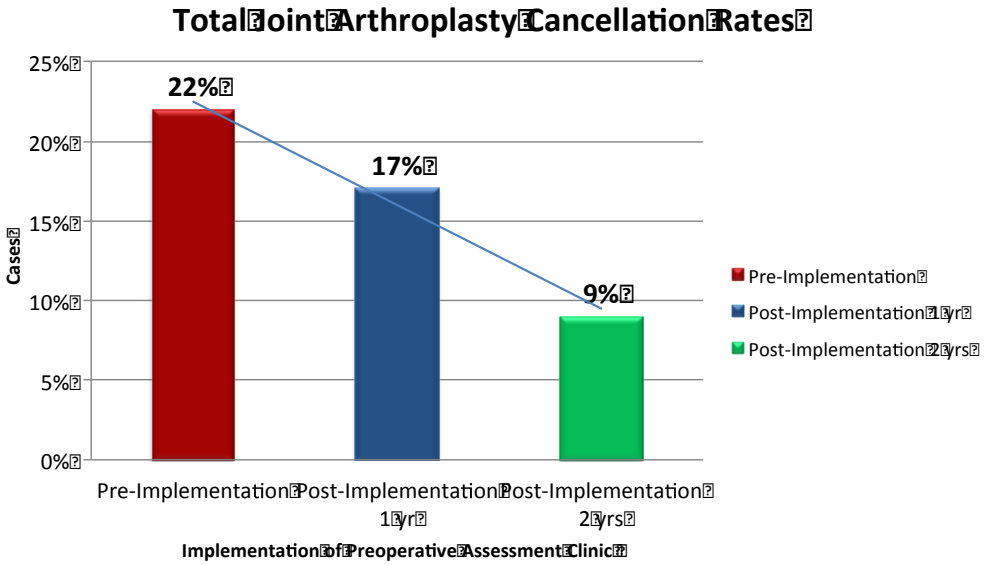


Figure 2. Total Joint Arthroplasty Cancellation Rates Pre- and Post-POAC.

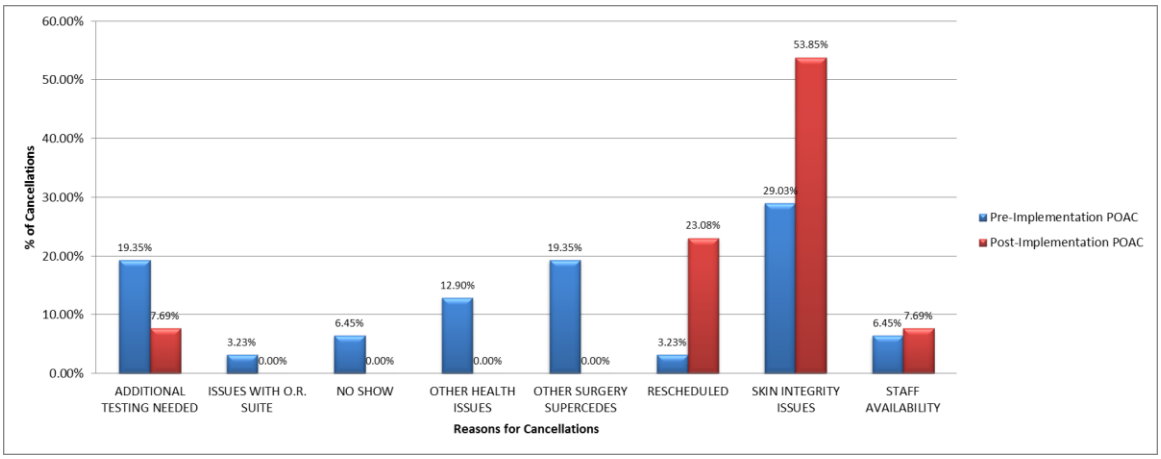


Figure 3. Reasons for Total Joint Arthroplasty Cancellations.

	Cancelled	Not Cancelled	Totals
Pre-Implementation	31 (22.2) [3.48]	111 (119.8) [0.65]	142
Post-Implementation + 2 yrs	12 (20.8) [3.72]	121 (112.2) [0.69]	133
Totals	43	232	275 (Grand Total)

Table 3. 2 x 2 contingency table χ^2 test results.

PATIENT SATISFACTION SURVEY

We really care about what you think! Please complete this quick survey and let us know how we can better meet your needs. **Please keep this survey ANONYMOUS and place it in the drop box after completion.** Thank you!

1. Ease and timeliness of obtaining an appointment to arrange for your surgery?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

2. Thoroughness of the exam and explanation of your planned surgery?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

3. The clarity of your treatment options and the risks of your surgery?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

4. The ease of scheduling your medical clearance and then your surgery?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

5. The experience of entering the hospital and then the preparation for surgery?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

6. Your understanding of the explanation by the surgeon of your surgery and the plans for your recovery?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

7. The responsiveness and timeliness of the ward staff to your needs following surgery?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

8. The instruction and understanding of your post-surgery therapy program?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

9. The completeness and timeliness of plans for discharge to rehab or home after surgery?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

10. The completeness and timeliness of equipment you needed at home after discharge?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

11. Were your post-surgery clinic follow-up visit plans clear and complete?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

12. Was the information package provided helpful to you and your caregiver after discharge?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

13. How satisfied are you with the overall care provided by the clinics throughout the process: First consultation with the surgeon, pre-op clinic, day of surgery and post-op care?

Very Dissatisfied Dissatisfied Somewhat Satisfied Satisfied Very Satisfied

☐ ☐ ☐ ☐ ☐

14. Would you recommend us to your family and friends for care?

Yes No

☐ ☐

PLEASE LIST ANY SUGGESTIONS/RECOMMENDATIONS THAT YOU THINK WOULD IMPROVE YOUR OVERALL EXPERIENCE:

Figure 4. Patient Satisfaction Survey

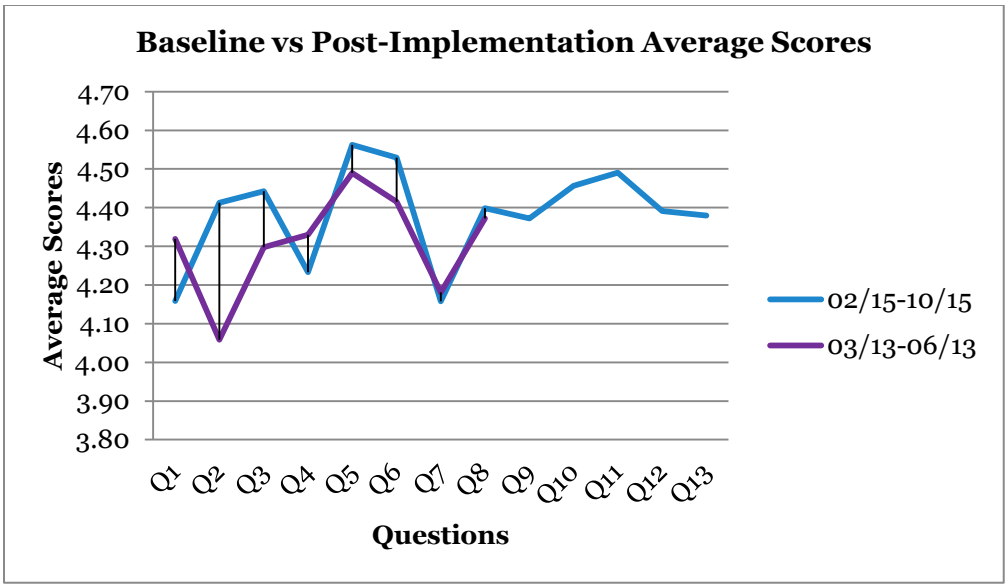


Figure 5. Patient Satisfaction Scores Pre- and Post-POAC

Conclusions and Implications

In the studies reviewed, case cancellations ranged from 4.6% to 60%. After implementation of a POAC in these facilities, the rate dropped to a range of 5%-14% (Argo et al., 2009). Implementation of a POAC at this major southern California VA hospital reduced the rate to 9%, meeting the national threshold.

Research suggests that delays in surgery can cause anxiety and frustration for the patient, resulting in poor patient satisfaction, and a significant waste of resources. Implementation of a POAC reduced wasted resources, increased quality patient care and improved patient satisfaction and outcome.

Evidence exists that a nurse practitioner-led POAC reduces cancellations for elective surgeries. This project has revealed that NPs are highly qualified and effective in providing perioperative care in the orthopedic setting.

The POAC and pre-op flow process can be implemented in the orthopedic department, as well as other surgical departments throughout the VA. Furthermore, a

POAC can be applied to several settings such as a community hospital, large facility or academic medical center.

References

Apfelbaum, J., Connis, R., & Nickinovich, D. (2012). Practice advisory for preanesthesia evaluation: An updated report by the American Society of Anesthesiologists Task Force on preanesthesia evaluation. *American Society of Anesthesiologists* 116 (3), 1-17.

Argo, J., Vick, C., Graham, L., Itani, K., Bishop, M., & Hawn, M. (2009). Elective surgical case cancellation in the Veterans Health Administration system: Identifying areas for improvement. *American Journal of Surgery*, 600-606. doi: 10.1016/j.amjsurg.2009.07.005

Card, R., Sawyer, M., Degnan, B., Harder, K., Kemper, J., Marshall, M., & Varela, N. (2014). *Perioperative protocol.* Bloomington, MN: Institute for Clinical Systems Improvement (ICSI).

Knox, M., Myers, E., Wilson, I., & Hurley, M. (2009). The impact of pre-operative assessment clinics on elective surgical case cancellations. *The Royal Colleges of Surgeons of Edinburgh and Ireland*, 7, 76-78.

Rymurak, S. (2011). A retrospective observational study of patient cancellations on the day of surgery in the general surgical doctorate. *Journal of Perioperative Practice* 21 (10), 337-341.

Schaffer, M., Sandau, K., & Diedrick, L. (2012). Evidence-based practice models for organizational change: overview and practical applications. *Journal of Advanced Nursing* 69, 1197-1209. DOI: 10.1111/j.1365-2648.2012.06122.x

CANP Abstract

Preoperative Assessment Clinic Reduces Total Joint Arthroplasty Case Cancellations

Angelica Adriano, MSN, FNP-BC
University of San Diego
Hahn School of Nursing and Health Science
San Diego, CA
Joseph Burkard, DNSc, CRNA, Mary Jo Clark, PhD, RN

Purpose: To assess whether implementation of a Nurse Practitioner-Led Preoperative Assessment Clinic (POAC), in the orthopedic department at a major Southern California Veterans Affairs (VA) hospital, would reduce elective total joint replacement surgical cancellation rates.

Background: Cancellation of elective surgical cases is a persistent problem encountered in the orthopedic department at this major Southern California VA hospital. Evidence exists that a Nurse Practitioner-led POAC can potentially reduce cancellations for elective surgeries. Within the VA system, the 12.4% cancellation rate led to an estimated loss of more than $32 million in 2006. The greatest proportions of cancellations were due to patient factors (35%), work-up/medical status change (28%), and facility factors (20%). Many of the reasons for cancellations were found to be preventable. In the studies reviewed, case cancellations ranged from 4.6% to 60%. After implementation of a POAC, the rate dropped to a range of 5%-14%.

Methodology: A performance improvement project was initiated at this facility in the orthopedic department. Retrospective data collected in a 12-month time period showed a surgical cancellation rate of 22%. Reasons for delays or cancellations included: medical instability, abnormal labs and/or studies, patients requiring referral to specialists, dental clearance, patient-initiated cancellations, and active infections.

Findings: The POAC reduced the rate of case cancellations at 1 year to 17% and at 2 years to 9%. Lost revenue of 12 case cancellations 2 years post-implementation was $62,940, whereas lost revenue pre-implementation from 31 case cancellations was $162, 595. A χ^2 test was performed to determine the relationship between the POAC and case cancellation rates. The relationship between these variables was statistically significant, $\chi^2 = 8.541$, $p = .003$.

Conclusion/Discussion: Implementation of a Nurse Practitioner-Led POAC, in the orthopedic department at this facility reduced elective total joint replacement surgical cancellation rates, improving patient outcome, reducing wasted resources, and increasing patient and staff satisfaction.

Dear CANP Poster Presenter,

Congratulations, your abstract has been accepted for a Poster Presentation at the conference!

Thank you for agreeing to participate at the California Association for Nurse Practitioner's (CANP) 39th Annual Educational Conference, March 17-20, 2016 at the Newport Beach Marriott Hotel & Spa, Newport Beach, California. For more than three decades, CANP has represented thousands of nurse practitioners and other health care professionals across the state. Actively engaged in the legislative process, we are committed to the advancement and protection of the nurse practitioner profession. We are proud of the strides we've made and, as health care reform continues to unfold, we remain dedicated to improving California's health care delivery system. Our journey has been a collaborative and spirited one, and we couldn't have done it without passionate educators like you.

To confirm your Poster Presentation, CANP requires all speakers and poster presenters to complete a Speaker Packet online at CANP 39th Educational Conference Speaker Packet Confirmation. The purpose of the Speaker Packet is to provide CANP with your session(s) specific AV needs, honorarium mailing address and provide you with complete details for speaker registration, hotel reservations and consent agreement. Speakers and poster presenters accepted for more than one session must complete a form for each session/poster. You will receive a confirmation of receipt via email once you've successfully submitted the speaker packet confirmation.

New accreditation guidelines from AANP require all speakers and poster presenters to complete the attached AANP form. Please complete the AANP form and email to Sulema@canpweb.org.

The **deadline** to complete the AANP form and the CANP speaker packet confirmation information is **no later than October 31, 2015**.

Poster Presentations have been scheduled for the following:

- Thursday, March 17, 2016 10:15 – 10:30 am
- Thursday, March 17, 2016 2:45 pm – 3:45 pm
- Friday, March 18, 2016 7:15 – 8:15 am
- Friday, March 18, 2016 10:15 – 10:45 am
- Friday, March 18, 2016 4:30 – 5:00 pm
- Saturday, March 19, 2016 7:30 – 8:30 am
- Additional Saturday times may be added. You will be sent a notice of updates.

Speaker Registration:
CANP offers honoraria for each session offered at the Educational Conference. Speakers who present concurrent in-track sessions, workshops and poster presenters will receive an honorarium. CANP has added an extra savings benefit to our speaker participation program by extending a discount of 50% off conference registration to all In-Track and Workshop speakers (Poster presentations not included).

The honorarium will only be provided to the primary lead speaker listed on the abstract. If a session has two or more speakers, it is the responsibility of the primary speaker to manage honoraria disbursement. All presentations are limited to no more than three (3) presenters.

CANP does not offer reimbursement for slide/poster production, shipping, damaged items, travel, hotel, supplies, medical waste disposal or admin support.

Speakers will receive their honorariums after the conference is completed. Speakers are required to contact CANP if they do not receive payment within 30 days. CANP does not issue honorariums after 90 days of the conference. Lost or returned honorariums may be replaced, but only up to 90 days after conference.

All speakers and poster presenters MUST register for the conference at canpweb.org.

Hotel Information:
The 2016 CANP Conference will be held at the Newport Beach Marriott Hotel and Spa, Newport Beach, California. CANP has secured a block of rooms at the Newport Beach Marriott. Be sure to mention the room block "CANP" to receive the discounted rate.

Newport Beach Marriott Hotel & Spa
900 Newport Center Drive
Newport Beach, CA 92660
949 760-0174
$189 per night (single/double occupancy)
Plus applicable resort fees, state and local taxes

To make your hotel reservations;
Online: https://resweb.passkey.com/go/CANP2016Conference

Call In: Marriott reservations 877 622-3056

Reservations are accepted on a space and rate available basis. Book your room today to ensure you receive the CANP discounted rate by February 26, 2016.

We thank you for your assistance and look forward to seeing you in March. If you have any questions, please do not hesitate to contact me at sulema@canpweb.org or 916 441-1361.

Sincerely,

Sulema H. Peterson
Events Director
1415 L Street, Suite 1000
Sacramento, CA 95814
916 441-1361
canpweb.org

Power in Practice

CANP CALIFORNIA ASSOCIATION FOR NURSE PRACTITIONERS

Preoperative Assessment Clinic Reduces Total Joint Arthroplasty Case Cancellations

Angelica Adriano, MSN, FNP-C, DNP Student, William McMaster, MD, F.A.C.S, F.A.A.O.S, Joseph Burkard, DNSc , CRNA, Mary Jo Clark, PhD, RN
University of San Diego

Purpose

To assess whether implementation of a Nurse Practitioner-Led Preoperative Assessment Clinic (POAC), in the orthopedic department at the Veterans Affairs Long Beach Healthcare System (VALBHS), would reduce elective total joint replacement surgical cancellation rates.

Evidence for Problem

A performance improvement project was initiated at VALBHS in the orthopedic department. Retrospective data collected in a 12-month time period showed a surgical cancellation rate of 22%.

Background

Evidence exists that a Nurse Practitioner-led POAC can potentially reduce cancellations for elective surgeries. Within the VA system, the 12.4% cancellation rate led to an estimated loss of more than $32 million in 2006. The greatest proportion of cancellations were due to patient factors (35%), work-up/medical status change (28%), and facility factors (20%). Many of the reasons for cancellations were found to be preventable. In the studies reviewed, case cancellations ranged from 4.6% to 60%. After implementation of a POAC in these facilities, the rate dropped to a range of 5%-14%.

Preoperative Assessment Clinic Project Process

Data was collected retrospectively from a computerized chart review during a 12-month time period to identify the reasons for surgical cancellations – the overall rate was 22%. VA and USD IRB approval was obtained.

Data collected in the 12-month and 24-month time period post-implementation focused on the factors identified as common, potentially preventable reasons for cancellation including:

- Medical instability
- Body mass index (BMI) > 35 kg/m2
- Hemoglobin (Hgb) A1c > 8%
- Abnormal labs and/or studies
- Necessity for referral to specialists
- Dental clearance
- Patient-initiated cancellations
- Active infections (e.g., wounds, urinary tract infection, upper respiratory tract infection, sinus infection, tooth infection, fever)

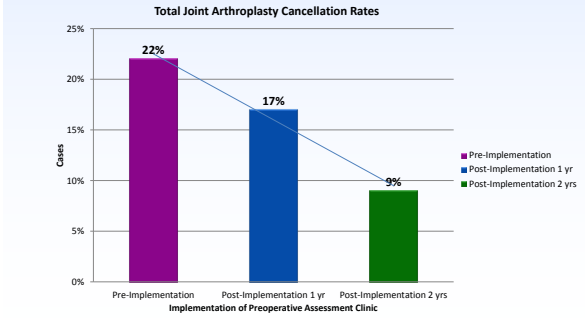
Results

POAC	CANCELLATION/ # OF SURGERIES	CANCELLATION RATE
Pre-Implementation (July 2012-June 2013)	31/142	22%
Post-Implementation + 1 yr (July 2013-June 2014)	21/125	17%
Post-Implementation + 2 yrs (July 2014-June 2015)	12/133	9%

Implementation of a POAC in the orthopedic department at VALBHS reduced the rate of case cancellations at 1 year to 17%, and at 2 years to 9%.

Chi-square Table	Cancelled	Not Cancelled	Totals
Pre-Implementation	31 (22.2) [3.48]	111 (119.8) [0.65]	142
Post-Implementation + 2 yrs	12 (20.8) [3.72]	121 (112.2) [0.69]	133
Totals	43	232	275 (Grand Total)

The chi-square statistic is 8.541
The *p* value is .003472
This result is significant at $p < .05$



Johns Hopkins Evidence-Based Practice Model

Cost-Benefit Analysis

Each total joint arthroplasty = $5,245
Pre-implementation, 31 cases cancelled:
$5,245 x 31 = $162,595
Post-implementation (2 yrs), 12 cases cancelled:
$5,245 x 12 = $62, 940
Savings: $162,595 - $62,940 = $99,155

Conclusion

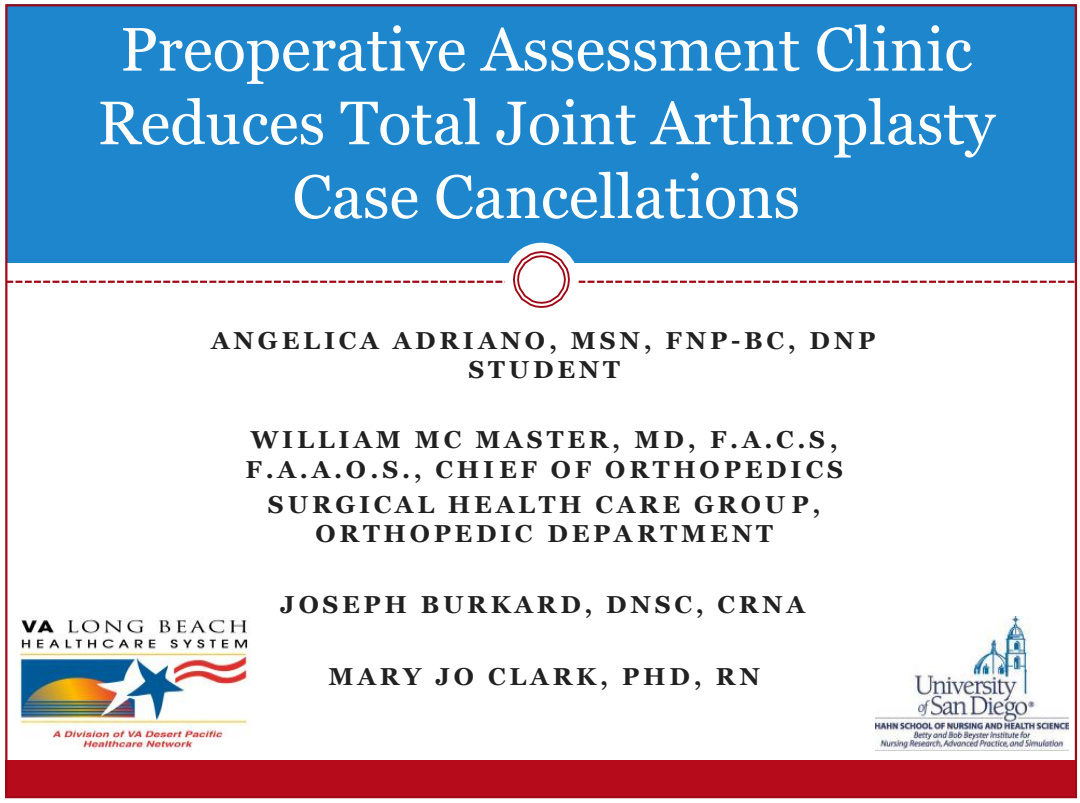
Research suggests that delays in surgery can cause anxiety and frustration for the patient, resulting in poor patient satisfaction, and a significant waste of resources. Implementation of a POAC reduced wasted resources, increased quality patient care and improved patient satisfaction and outcome.

Implications for Clinical Practice

To reduce the rate of elective case cancellations, the Nurse Practitioner-led POAC can be implemented in the orthopedic department as well as other surgical departments. The POAC can be applied to several settings such as a community hospital, large facility, or an academic medical center.

Contact Information

Angelica Adriano: angelica.adriano@va.gov


Preoperative Assessment Clinic Reduces Total Joint Arthroplasty Case Cancellations
ANGELICA ADRIANO, MSN, FNP-BC, DNP STUDENT
WILLIAM MC MASTER, MD, F.A.C.S, F.A.A.O.S., CHIEF OF ORTHOPEDICS
SURGICAL HEALTH CARE GROUP, ORTHOPEDIC DEPARTMENT
JOSEPH BURKARD, DNSC, CRNA
MARY JO CLARK, PHD, RN
VA LONG BEACH HEALTHCARE SYSTEM
A Division of VA Desert Pacific Healthcare Network
University of San Diego
HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
Betty and Bob Beyster Institute for Nursing Research, Advanced Practice, and Simulation

VA LONG BEACH HEALTHCARE SYSTEM
A Division of VA Desert Pacific Healthcare Network

BACKGROUND

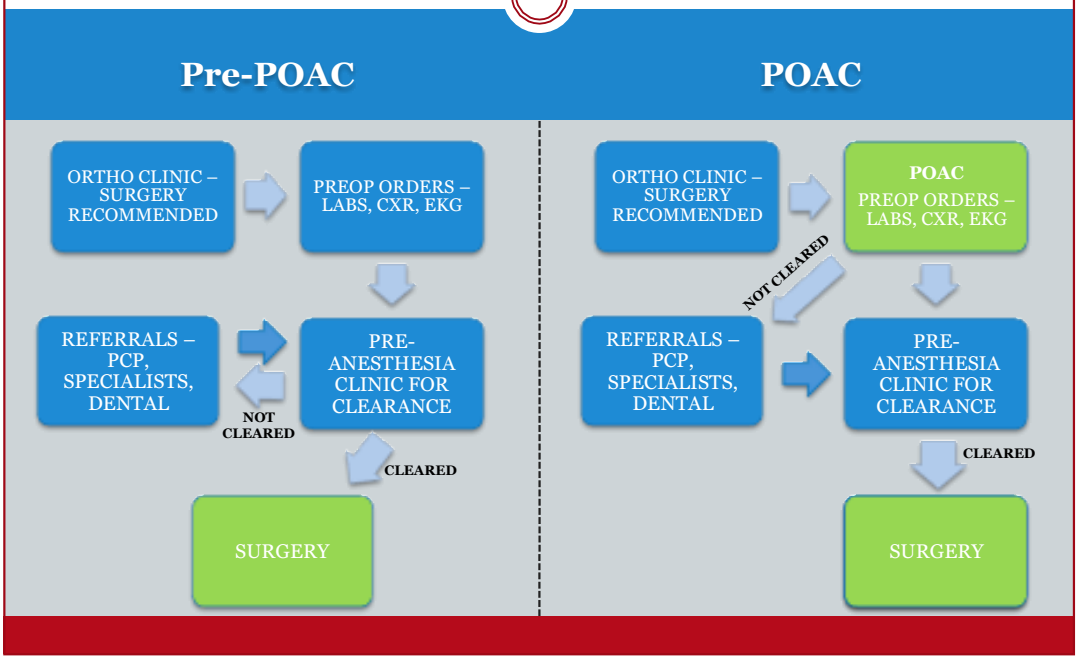
University of San Diego
HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
Betty and Bob Beyster Institute for Nursing Research, Advanced Practice, and Simulation

- Evidence exists that a Preoperative Assessment Clinic (POAC) can potentially reduce cancellations for elective surgeries.
- Within the VA system, the 12.4% cancellation rate led to an estimated loss of more than $32 million in 2006.
- In the studies reviewed, case cancellations ranged from 4.6% to 60%. After implementation of a POAC, the rate dropped to a range of 5%-14%.
- The greatest proportion of cancellations were due to:
  - Patient factors (35%)
  - Work-up/medical status change (28%)
  - Facility factors (20%)
  - Many of the reasons for cancellations were found to be **preventable**.

VA LONG BEACH HEALTHCARE SYSTEM

A Division of VA Desert Pacific Healthcare Network

Preoperative Flow Chart



VA LONG BEACH HEALTHCARE SYSTEM
A Division of VA Desert Pacific Healthcare Network

EVIDENCE FOR PROBLEM

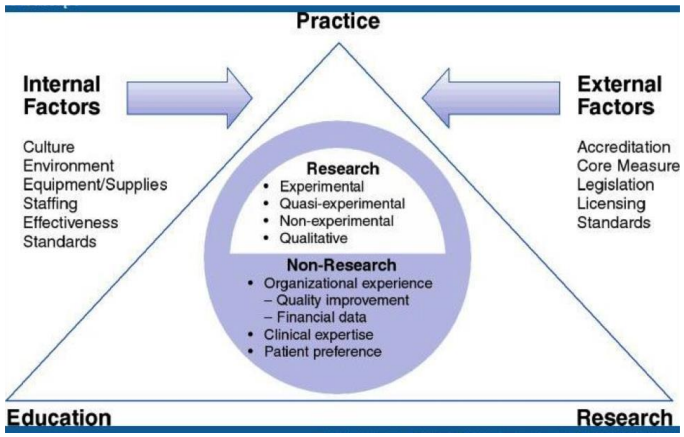
University of San Diego
HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
Betty and Bob Beyster Institute for Nursing Research, Advanced Practice, and Simulation

- A performance improvement project was initiated at a major southern California Veterans Affairs (VA) hospital in the orthopedic department.
- VA and USD IRB approved
- Retrospective data collected in a 12-month time period showed a surgical cancellation rate of 22%

PURPOSE/PICO QUESTION

Will implementation of a Preoperative Assessment Clinic (POAC) in the orthopedic department at a major southern California Veterans Affairs (VA) hospital, reduce elective total joint arthroplasty surgical cancellation rates?

Johns Hopkins Nursing Evidence-Based Practice Model



Evidence-Based Practice Process

Practice Question, Evidence, Translation (PET)

COST TO IMPLEMENT POAC

Item	Description	Annual
Data Collection	Systems Redesign Coordinator will collect data. Hours spent for data collection 1 hr/week. Salary is $40/hr (24 weeks). LVN will collect patient surveys. Will not be added cost as she can perform this during normal clinic hours as part of the patient's post-operative visit.	$960
Data Entry	Systems Redesign Coordinator will enter data. Hours spent for data collection 1 hr/week. Salary is $40/hr x 6 months (24 weeks).	960
Data Analysis	Systems Redesign Coordinator will analyze data. Hours spent for data collection 1 hr/week. Salary is $40/hr (24 weeks).	960
NP H&P clinic	NP will see 10 patients/week for 30 minutes. Salary $80/hour = $400/wk x 6 months.	9,600
Materials for staff training	$50/month x 6 months = $300	300
Total		**$10,860**

COST TO PERFORM TOTAL JOINT ARTHROPLASTY AT VALBHS

Item	Description	Per Case
Surgeon Salaries	Attending: $150/hr x 3 hrs = $450 Chief Resident: $60/hr x 3 hrs = $180 Junior Resident: $30/hr x 3 hrs = $90	$720
OR Nurse Salary	$50/hour x 3 hrs = $150	$150
CRNA Salary	$100/hr x 3 hrs = $300	$300
Scrub Technician Salary	$25/hr x 3 hrs = $75	$75
Opportunity cost for OR use time*	$4000 (range $4000-$15000)	$4000
Equipment Cost**	0	0
Total		**$5245**

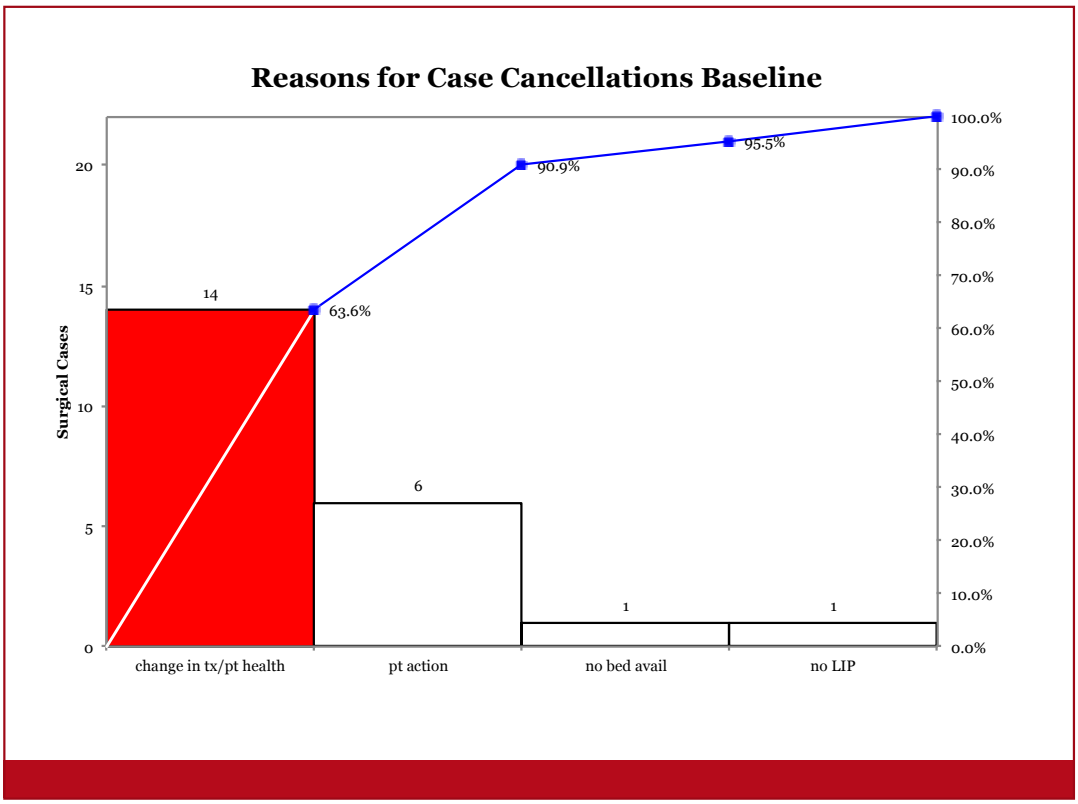
VA LONG BEACH HEALTHCARE SYSTEM
A Division of VA Desert Pacific Healthcare Network

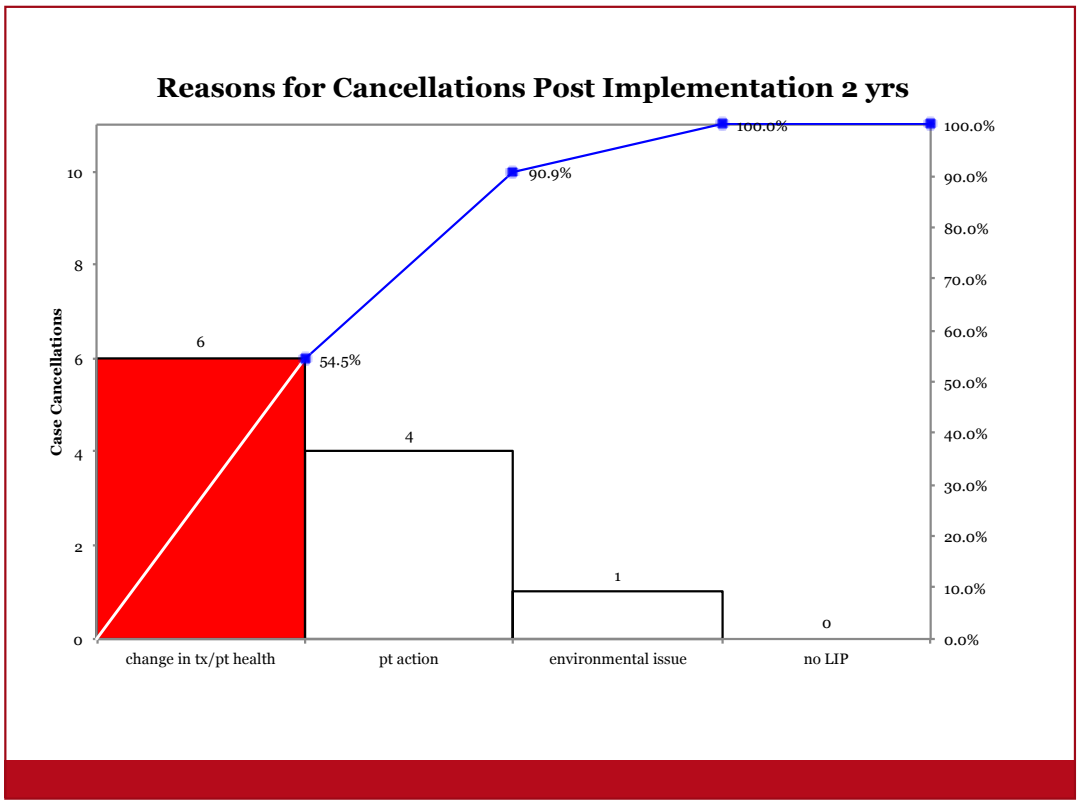
POAC PROJECT PROCESS

University of San Diego
HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
Betty and Bob Beyster Institute for Nursing Research, Advanced Practice, and Simulation

- Data was collected retrospectively from computerized chart review during a 12-month time period to identify the reasons for surgical cancellations – the overall rate was 22%.

- Data collected post-implementation in the 12-month and 24-month time period focused on the factors identified as common, potentially preventable reasons for cancellation including:
  - Medical instability (i.e. uncontrolled blood pressure)
  - Body mass index (BMI) > 35 kg/m2
  - Hemoglobin (Hgb) A1c > 8%
  - Abnormal labs and/or studies
  - Necessity for referral to specialists
  - Dental clearance
  - Patient-initiated cancellations
  - Active infections (e.g., wounds, urinary tract infection, upper respiratory tract infection, sinus infection, tooth infection, fever)


Reasons for Case Cancellations Baseline
Surgical Cases
0
5
10
15
20
0.0%
10.0%
20.0%
30.0%
40.0%
50.0%
60.0%
70.0%
80.0%
90.0%
100.0%
14
6
1
1
63.6%
90.9%
95.5%
change in tx/pt health
pt action
no bed avail
no LIP


Reasons for Cancellations Post Implementation 2 yrs
Case Cancellations
0
2
4
6
8
10
0.0%
10.0%
20.0%
30.0%
40.0%
50.0%
60.0%
70.0%
80.0%
90.0%
100.0%
6
4
1
0
54.5%
90.9%
100.0%
change in tx/pt health
pt action
environmental issue
no LIP

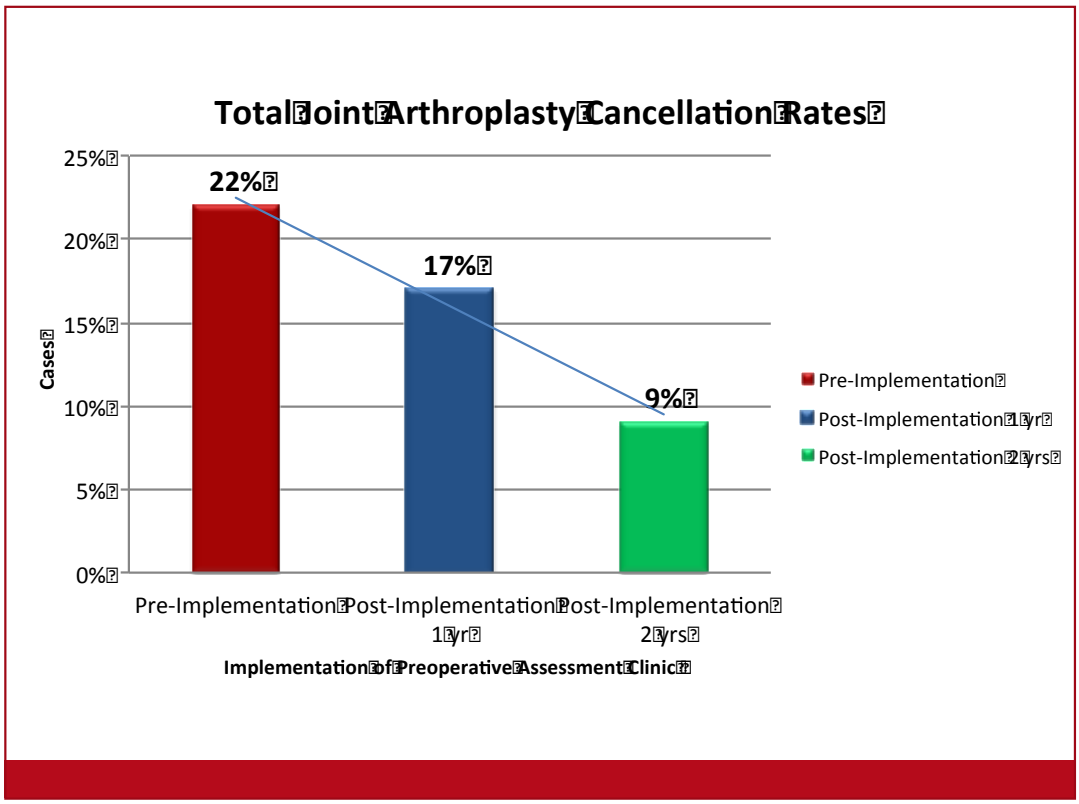
VA LONG BEACH HEALTHCARE SYSTEM
A Division of VA Desert Pacific Healthcare Network

RESULTS

University of San Diego
HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
Betty and Bob Beyster Institute for Nursing Research, Advanced Practice, and Simulation

POAC	CANCELLATION/ # OF SURGERIES	CANCELLATION RATE
Pre-Implementation (July 2012-June 2013)	31/142	22%
Post-Implementation + 1 yr (July 2013-June 2014)	21/125	17%
Post-Implementation + 2 yrs (July 2014-June 2015)	12/133	9%

Implementation of a POAC in the orthopedic department at this VA hospital reduced the rate of case cancellations at 1 year to 17%, and at 2 years to 9%


Total Joint Arthroplasty Cancellation Rates
25%
20%
15%
10%
5%
0%
Cases
22%
17%
9%
Pre-Implementation
Post-Implementation 1 yr
Post-Implementation 2 yrs
Pre-Implementation
Post-Implementation 1 yr
Post-Implementation 2 yrs
Implementation of Preoperative Assessment Clinic

Chi-square Statistic

	Cancelled	Not Cancelled	Totals
Pre-Implementation	31 (22.2) [3.48]	111 (119.8) [0.65]	142
Post-Implementation + 2 yrs	12 (20.8) [3.72]	121 (112.2) [0.69]	133
Totals	43	232	275 (Grand Total)

The chi-square statistic is 8.541
The p value is .003472
This result is significant at $p < .05$

COST-BENEFIT ANALYSIS

- Each total joint arthroplasty = $5,245
- Pre-implementation 31 cases cancelled:

  $5,245 x 31 = $162,595
- Post-implementation (2 yrs) 12 cases cancelled:

  $5,245 x 12 = $62, 940
- Savings: $162,595 - $62,940 = $99,155

Patient Satisfaction Survey

16

LBVAMC ORTHOPAEDIC SURGERY
PATIENT SATISFACTION SURVEY

We really care about what you think! Please complete this quick survey and let us know how we can better meet your needs. **Please keep this survey ANONYMOUS and place it in the drop box after completion.** Thank you!

1. Ease and timeliness of obtaining an appointment to arrange for your surgery?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

2. Thoroughness of the exam and explanation of your planned surgery?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

3. The clarity of your treatment options and the risks of your surgery?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

4. The ease of scheduling your medical clearance and then your surgery?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

5. The experience of entering the hospital and then the preparation for surgery?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

6. Your understanding of the explanation by the surgeon of your surgery and the plans for your recovery?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

7. The responsiveness and timeliness of the ward staff to your needs following surgery?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

8. The instruction and understanding of your post-surgery therapy program?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

9. The completeness and timeliness of plans for discharge to rehab or home after surgery?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

10. The completeness and timeliness of equipment you needed at home after discharge?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

11. Were your post-surgery clinic follow-up visit plans clear and complete?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

12. Was the information package provided helpful to you and your caregiver after discharge?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

13. How satisfied are you with the overall care provided by the clinics throughout the process: First consultation with the surgeon, pre-op clinic, day of surgery and post-op care?

Very Dissatisfied | Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied

☐ ☐ ☐ ☐ ☐

14. Would you recommend us to your family and friends for care?

Yes | No

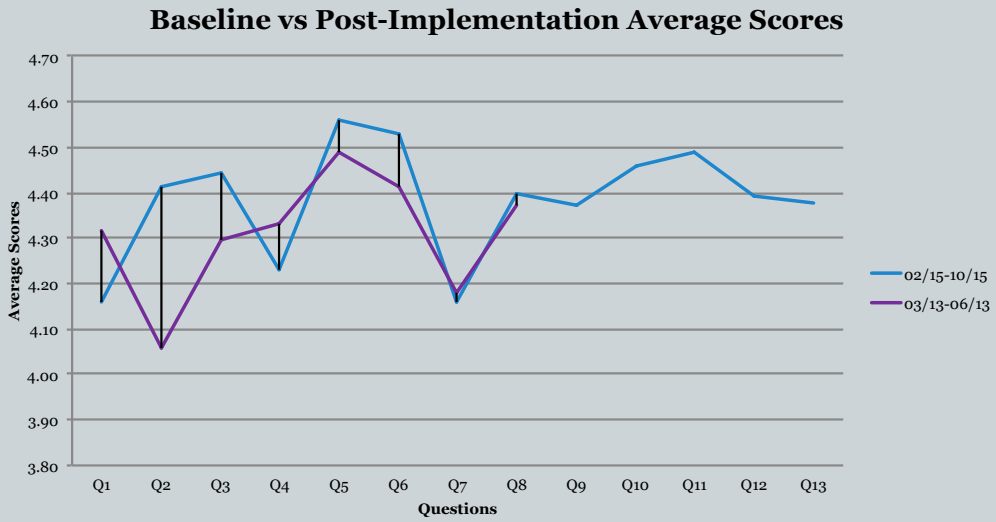
☐ ☐

PLEASE LIST ANY SUGGESTIONS/RECOMMENDATIONS THAT YOU THINK WOULD IMPROVE YOUR OVERALL EXPERIENCE:

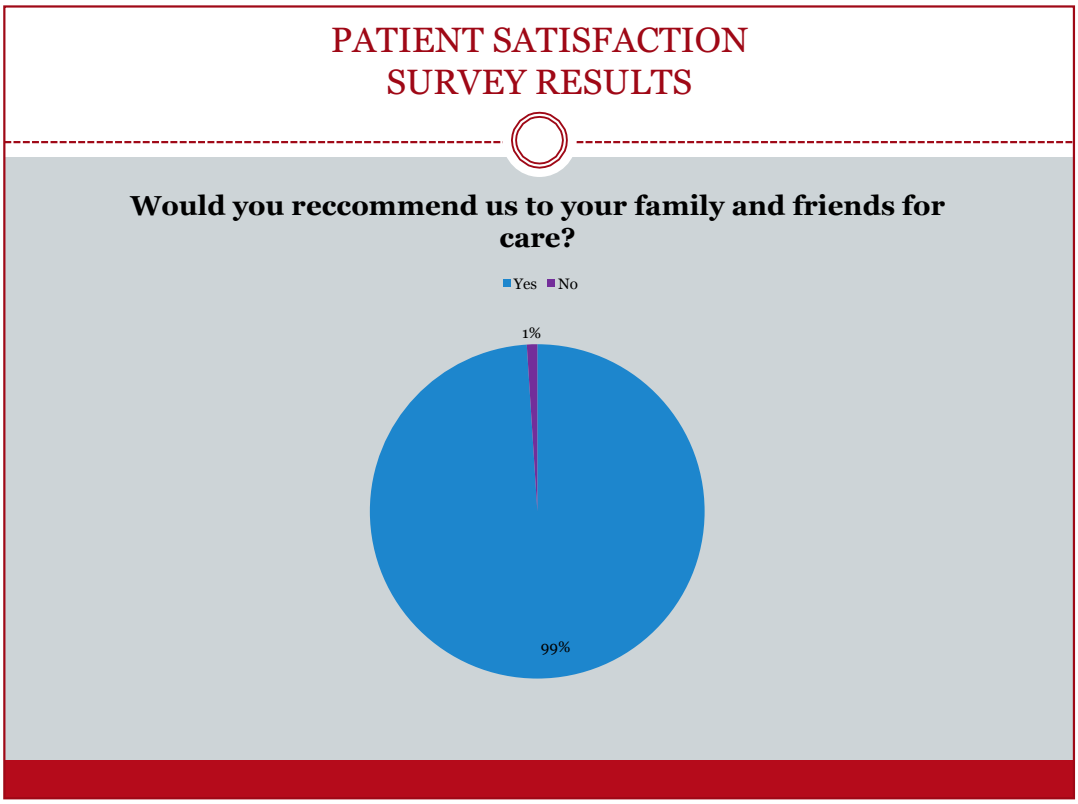
VA LONG BEACH HEALTHCARE SYSTEM
A Division of VA Desert Pacific Healthcare Network

PATIENT SATISFACTION SURVEY RESULTS

University of San Diego
HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
Betty and Bob Beyster Institute for Nursing Research, Advanced Practice, and Simulation



PATIENT SATISFACTION SURVEY RESULTS



CONCLUSIONS

- In the studies reviewed, case cancellations ranged from 4.6% to 60%. After implementation of a POAC in these facilities, the rate dropped to a range of 5%-14%.
- Implementation of a POAC at a major southern California VA hospital reduced the rate to 9%, meeting the national threshold.
- Research suggests that delays in surgery can cause anxiety and frustration for the patient, resulting in poor patient satisfaction, and a significant waste of resources.
- Implementation of a POAC reduced wasted resources, increased quality patient care and improved patient satisfaction and outcome.

IMPLICATIONS FOR CLINICAL PRACTICE

- Evidence exists that a Nurse Practitioner-led POAC reduces cancellations for elective surgeries.
- The POAC and pre-op flow process can be implemented in the orthopedic department, as well as other surgical departments throughout the VA.
- The POAC can be applied to several settings such as a community hospital, large facility or academic medical center.

REFERENCES

a. Argo, J., Vick, C., Graham, L., Itani, K., Bishop, M., and Hawn, M. (2009). Elective surgical case cancellation in the Veterans Health Administration system: identifying areas for improvement. The American Journal of Surgery, 600-606. doi: 10.1016/j.amjsurg. 2009.07.005

b. Garson, L, Schwarzkopf, R., Vakharia, S., Alexander, B., Stead, S., Cannesson, M., & Kain, Z., (2014). Implementation of a total joint replacement-focused perioperative surgical home: A management case report. *Anesthesia and Analgesia,* 118, 1081-1089. doi: 10.1213/ANE.0000000000000191.

c. Knox, M., Myers, E., Wilson, I., & Hurley, M. (2009). The Impact of pre-operative assessment clinics on elective surgical case cancellations. *The Royal Colleges of Surgeons of Edinburgh and Ireland* , 7, 76-78.

d. Rymurak, S. (2011). A retrospective observational study of patient cancellations on the day of surgery in the general surgical doctorate. *Journal of Perioperative Practice,* 21, 337-41.

e. Vetter, T., Ivankova, N., Goeddel, L., McGwin, G., & Pittet, J., (2013). An analysis of methodologies that can be used to validate if a perioperative surgical home improves the patient-centeredness, evidence-based practice, quality, safety, and value of patient care. *Anesthesiology* 119, 1261-1274. doi: 10.1097/ALN.ob013e3182a8e9e6